In the Claims:

Please cancel claims 2, 10, 12, 20, 28, 32, and 34-42 without prejudice.

Please amend claims 1, 3-7, 11, 15-19, 21-27, 29-31, 33 and 43-49 to read as follows:

1. A method comprising:

storing a reference vector of a state metric comprising a plurality of vectors calculated, in a predetermined direction, from a block of symbols; and

re-calculating at least some of the state metric vectors based on the stored reference vector.

3. A method according to claim 1, wherein storing comprises storing two or more reference vectors.

4. A method according to claim 1, wherein re-calculating at least some of the state metric vectors comprises calculating state metric vectors which were not stored as reference vectors.

5. A method according to claim 3, wherein storing two or more reference vectors comprises storing a number of reference vectors which is about the square root of the number of the calculated state metric vectors.

6. A method according to claim 3, wherein storing two or more reference vectors comprises storing vectors selected responsive to locations of singular functions used in the calculating of the calculated state metric.

7. A method according to claim 3, wherein storing two or more reference vectors comprises storing vectors selected in predetermined intervals.

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8. A method according to claim 7, wherein storing two or more reference vectors selected in predetermined intervals comprises storing reference vectors with equal intervals between them.

9. A method according to claim 7, wherein storing two or more reference vectors selected in predetermined intervals comprises storing reference vectors with intervals of decreasing size between them.

11. A method according to claim 1, wherein re-calculating at least some of the state metric vectors comprises calculating at least some of the state metric vectors using a reverse function of a function used in the calculating the reference vector of the state metric.

15. A method according to claim 1, wherein re-calculating comprises calculating at least some of the vectors using a function which was used in the calculation of the reference vector of the state metric.

16. A method according to claim 1, further comprising:

        calculating the state metric by using a function which is an approximation of an original function; and

        re-calculating the at least some of the state metric vectors by using a reverse function of the original function.

17. A method according to claim 1, wherein storing the reference vector further comprises calculating the state metric vectors from the block of symbols in the predetermined direction by using a function which is an approximation of an original function when the original function is non-reversible.

18. A method according to claim 17, wherein calculating the state metric vectors from the block of symbols in the predetermined direction comprises forward calculating of the state metric vectors.

19.   A method according to claim 17, wherein calculating the state metric vectors from the block of symbols in the predetermined direction comprises backward calculating of state metric vectors.

21.   A method according to claim 16, wherein calculating the state metric comprises calculating a number of vectors substantially equal to a size of an encoding block.

22.   A method according to claim 16, wherein calculating the state metric comprises calculating a number of vectors substantially smaller than a size of an encoding block.

23.   A method comprising:

calculating a plurality of state metric vectors from a block of symbols in a first direction;

storing a reference vector of the calculated state metric vectors; and

calculating the state metric vectors from a block of symbols in a second direction based on the stored reference vector.

24.   A method according to claim 23, comprising re-calculating a first state metric vector from the block of symbols in the first direction after calculating a second state metric vector from the block of symbols in the second direction.

25.   A method according to claim 24, wherein re-calculating the first state metric vector from the block of symbols in the first direction comprises calculating the first state metric vectors based on the stored reference vector.

26.   A method according to claim 23, wherein storing the reference vector comprises storing two or more reference vectors calculated in predetermined intervals.

27.   A method according to claim 24, wherein calculating the first state metric vector comprises calculating the first state metric vector based on a closest stored reference vector.

29.   A method according to claim 23, further comprising:

storing two or more reference vectors;

dividing the block of symbols into a two or more segments defined by the stored reference vectors; and

re-calculating for the two or more segments the first state metric vector based on a respective stored reference vector of the segment.

30.   A method according to claim 29, wherein re-calculating for the two or more segments comprises re-calculating state metrics for some of the two or more segments.

31.   A method according to claim 29, comprising storing a re-calculated reference vector of the re-calculated state metric.

33.   A method according to claim 31, comprising storing the vectors of the re-calculated state metrics of the segment.

43.   An apparatus comprising:

circuitry to calculate state metric vectors from a block of symbols in a predetermined direction; and

a memory having a long term storage area to store a reference vector of the calculated state metric vectors and a short term storage to store at least some of the re-calculated state metric vectors which are re-calculated from the block of symbols in the predetermined direction based on the stored reference vector.

44.   The apparatus of claim 43, wherein a maximal storage space of the memory is capable to store less than fifty percent of a predetermined number of state metric vectors.

45.   The apparatus of claim 43, wherein the maximal storage space of the memory is capable to store less than twenty percent of the predetermined number of state metric vectors.

46.   The apparatus of claim 43, wherein the circuitry implements a plurality of different functions for calculating the state metric vectors.

47.   The apparatus of to claim 46, wherein the circuitry implements a pair of functions for calculating the state metric vectors which pair comprise mutual reverse functions.

48.   The apparatus of claim 43, wherein the long term storage area is used to store two or more reference vectors in predetermined intervals and the short term storage area is used to store the calculated state metric vectors between two reference vectors.

49.   The apparatus of claim 48, wherein the long term storage area serves for storing also state metric vectors from between two reference vectors.

Attached hereto is a marked-up version of the changes made by the current amendment. The attached pages are captioned **"Version with Markings to Show Changes Made"**.